Georges Vantongerloo: To perceive

The five senses at the disposal of man allow him to perceive a certain number of facts that we have qualified as objects. This very, very limited number seems comparatively non-existent among the facts, or manifestations, of creation (if indeed one can speak of a comparison).

But for man, considered independently, these five senses are sufficient for him to live his kind of life. Fish, birds, insects, and we could say even plants, behave differently having other needs for survival. But apart from these five senses, man possesses a more or less developed sensibility (as sight is more or less good); a brain allowing him to reflect; imagination (generally a little wild and fanciful); and the ability to observe and deduce. Thus he can see the invisible or, if you like, take a sounding of the incommensurable. In reality man, like all created things, is a mechanism capable of picking up waves. The difficulty lies in interpreting the sensations received. The variety and richness of these experiences go on to infinity, and can often contain simple facts which nevertheless escape our five senses. Often it is our sensibility which must draw us out of this impasse. This is what one calls having an illuminating idea.

An experience can affect us long after it has taken place, even years after, unless it escapes us. But the event has taken place, and our brain or our sensibility only becomes aware of it later. What one usually calls evolution must fall into this category. Evolution in such a case would be an accumulation of information received.

I have myself made several investigations which I will describe. I made an object in plastic material; **No.210, Six couleurs dans l'espace,** 1949. This is a curved form on which are placed six colours at a distance from one another. At first I could not measure the distances which separated the colours. In order to be able to do so with an object so shaped, it was necessary to discover a relative system of reference. I hooked the object on a wire and let it revolve. At whatever speed the object rotated, I could always see it as recognisable, and although in movement it was not changed in form. This meant that its speed synchronised with that of my vision. But if my vision was limited to a split-second, like a camera, it would no longer see the object as it previously appeared to me, and the result would no longer have any resemblance to the known object, for it would have changed its geometric forms. I possess a very characteristic photograph of this effect. I showed it at the Congress of the Golden Section in Milan in 1951.

But do not think that these results will always be identical. The universe contains innumerable phenomena which could equally well be cited. The refraction of light, for example. An object changes geometrical forms as **its** speed changes in relation to that of the observer (speed of the eye organism, mechanical device, photo). But it can also undergo physical changes. **No.210** seen through the eye of the camera, while rotating, registers multiple geometric positions giving an astonishing image. But the work **No.214** (1950) titled **Cocon chrysalide, embryonnaire**, in plastic material and of circular form, retains its object-form for the naked eye while rotating. But in the photograph it will take on a physical aspect, radiographic in type. It is the refraction which dominates. I showed this to the Milan Congress in 1951.

I have also made other observations. An example is **No.228, Segment d'espace,** 1953, in plastic material on which dots of colour are painted, giving by refraction various coloured forms. One can look at this object from any side and it will always remain the same; that is to say, only the position will vary. But seen through the camera's eye it can reveal unknown aspects, and certain shots show unsuspected forms and colours. One could even say that in making this object I wanted to incorporate this indefinable quality, but doubtless man's sight does not allow him to perceive this, and he needs another instrument that can develop what is denied to the human eye. I always find my work deceptive at the moment of finishing it, but later, often a long time afterwards, I notice that I have put in what I intended without knowing it. The photograph of this work was an encouragement to me, for I had so much wanted to obtain a result that I couldn't see in the object. Yet I must have put it there since the photograph showed it to me. The incommensurable well deserves its name. It is, of course, only thus so long as it isn't under conditions which render it commensurable and even visible. Under certain conditions infinity is finite.

I have had a more or less analogous experience with **No.240, Elément indéterminé**, 1955. But there the object in itself and in the photograph is totally absent. You would imagine that I had wanted to make something indeterminate. But to speak of determining the indeterminate and subjecting that to man's limited vision, is like speaking of the energy of the atom to someone who hasn't seen the result of it. Here I think that time plays its role. Time, as an absolute value, does not exist. The fact is that when we believe we see something as existing, this thing, before being transformed into another state, corresponds to the speed of our senses. That is to say, its position at a given moment is maintained long enough to allow our senses to perceive it, or register its presence. Time therefore has a varying duration between more or less NT. [Ed: NT is the scientific indication for indefinite time.] It is like space, finite and infinite at once. Basically, we observe a segment or movement of time, a segment or measure of space. Through our senses we are unable to perceive the infinite, for our senses are themselves limited. This does not affect the existence of the infinite, and we are subject to it. Being ourselves part of creation, the infinite, we would not be able to live without the infinite. We are within it, as in the air, like fish in the water. All this is one and the same thing, but from different aspects.

Well then, **No.240** is truly indeterminate. It is in perpetual transformation. The forms and the colours are variable: they have a mobility, and that without them being touched or agitated. They move calmly of themselves. They allow us to see, too, that the infinite is visible and hence finite, at least to man's vision. If the speed of the infinite is synchronised with the speed of vision, we see the infinite as finite. Let us imagine: an unknown, invisible factor is born, lives, endures for a time and dies. Throughout the whole duration of the time it lives, it is visible. Time is spectacular.

Light—time—space.
Light reveals itself by the surface on which it falls.
The time limit is the limited and varying duration of synchronised speeds; that of the perceived object in relation to that of the senses allowing perception.
The space limit is an extension, perceived or perceivable through the speed of our senses.
Time, light, and speed.

Light reveals itself by the surface on which it falls, and in the same way, it reveals the surface. The speed (energy) of the illuminated object, in accordance with the speed of our vision, reveals time to us. On either side of the speed of these illuminated bodies, our vision is unable to perceive the bodies or the light. Nor can it experience the duration of time. It is the duration of this perceptible state that gives us the sensation of time. If this state changes its speed, it re-enters the infinite. For a blind person objects and space reveal themselves through the tactile sense, and duration through the sense of hearing.

By convention, man registers time by the clock, space by three dimensions. This is very practical and does not offend his senses. But man is well aware that creation is not concerned with such conventions. He is obliged to admit electricity, Hertzian waves, radar, and the atom, although he is lost in the infinitely small and great, in infinite and finite, where time escapes him and he can only recognise what his watch shows him. To accept only those things which are perceptible by our senses is to expose ourselves to a lie. Confronted with the incommensurable, man is handicapped, and has recourse to a god. But he cannot be satisfied by ignorance, and so he must interpret creation. Beautiful though they may be, fables, hymns and commemorations are only illusions.

Man's possibilities of perception are increased by optical instruments and techniques, such as radiography, detectors and a thousand others. He has realised that his five senses are limited. One must say, too, that change is perpetual, that the infinite is in action, and that the finite which our senses perceive is subject to infinitesimal transformations which escape us. We often need instruments to give us information, though happily we have our sensibility. Today we know that the earth has existed for millions of years. It is easy to imagine that it did not always look the same as today, since everything is in process of transformation. Things are transformed physically and chemically, through action and reaction. The fluxes of nature take part. Legends and fables about it have only a literary value. Through discernment and deduction, through the subtlety of the sensibility, and through science, man is able to approach the inconceivable. The earth with its atmosphere is moving round the sun in an unknown matter, doubtless composed of gas and microbes. This matter no longer has the same characteristics as the atmosphere that surrounds the earth, yet the earth is revolving; in a vacuum? This is inconceivable! The sun's rays would then be non-existent, and simply the effect of a chemical or physical cause, electromagnetic. As the universe is infinite it must have infinite, non-identical zones: atmospheric zones of density. Light would not then be a ray of the sun but could be due to refraction: could be an effect of a cause. The state of one thing can change into that of another with different characteristics. It is therefore possible that the earth is moving in a milieu where its apparent weight, as we know it, is no longer the same, and forces the earth to describe an orbit on the ellipse from which it cannot deviate. This is as necessary to it as air to man. It is inevitable. Creation always has its reasons. The physical chemistry of the universe has its imponderables. Is it not beautiful? This really is engendered creation.

[1957]

Universal-existence?

Man has five senses, and they suit him very well. That is to say, for the type of animal he is, they are enough. Through these faculties he views life. How would man picture to himself the things in the outside world if he had even more senses: for example, antennae? We cannot imagine it for we believe ourselves perfect of our kind. It is true that for our daily needs it seems that nothing is missing to conduct us through what we call life. But how do our five senses function? Sight, for example. We see simply what our brain sets out for us: what it is capable of making us see, and what our feelings impose on it, interpreted according to our personal development. Judgments on the appearance of something by two or more people are never identical. This corresponds well to the imponderability of the universal.

To man, the earth was once flat. He saw it like that. Then it was round, and the universe revolved round it (geocentric). Next one had to accept a planetary system (heliocentric). Then a galaxy, and later galaxies. Thus our brain allows us to see, or represent, things according to the degree of our development. But the variations of creation go on to infinity; it is so rich and really universal. The characteristics of the earth, the moon, the sun, and the planets, are really individual and non-identical. The stars and the planets are not at all similar, and they exist in varieties. All this is not contradictory. Dimensions and distances are not identical. The moon has no atmosphere and is volcanic. The earth is surrounded by an outer atmosphere, quite unlike its own, and it orbits in this outer atmosphere without falling into nothingness. The sun has its different atmospheres, its photosphere, chromosphere, its crown and its protuberances. Jupiter is only a gas. All this is orchestrated in the universe. Isn't it wonderful when all that must struggle, and what a struggle! A harmony through transformation, which is perpetual. A necessary destruction for the construction of creation. It is a marvel beyond our understanding. And here is man with his five senses who sees everything in three dimensions. And the universe which is infinite has no dimensions. It has no numbers since there are millions of stars, millions of light years away. There is no void since there are clouds of interplanetary dust (dust gas). Novae which burst, etc, etc. Man has measured distance in miles. But the distances become ever greater, one must use other units; the solar ray, the light year the parsec. [Ed: The parsec is the distance at which a star would have to be in order to have an annual parallax of one second of arc.] Now one has much more contact with the universe through radio electricity, the radio telescope, radar. This kind of subtlety, sensibility, is indicated as being more in unison with the universe. One must use the same language as creation in order to be able to synchronise with it. Sight is augmented by the telescope. But there are the dust clouds (aerolithes). Could they not be traversed by radar? Couldn't one send waves into the universe which would send back information to us on the characteristics of the stars? The asteroid Ceres is no more than 770 km in diameter. A great many are no more than 30km. Against that, Jupiter has a diameter of 137,990km. It makes a complete revolution in 9 hours 50 minutes, and the length of time for an orbit is 11 years, 315 days; 120 days longer at the Equator than at the poles. We see that the universe is not three dimensionally governed. Creation is rich and variable.

[1961]

Conception of space . 1

If one takes space as a subject for consideration it can be thought of in different ways.

The objects perceived through our senses of sight or touch are always placed in an environment. Objects occupy a space or are intrinsic to it. This space is said to have three dimensions. One is able to measure points on an object, but the other part of space, the void, can't be measured. Yet this, equally, makes up part of space. Without it one would see only the object, rather as if one were deprived of seeing anything else at all. One can, of course, also see the space (the void) between two or more objects or volumes. This void, plus the object, constitutes space. It is not that space has three dimensions, but that objects are measured by three dimensions.

But measurements are sizes which themselves have relations, and are equally relations of the object. These last relations can be sensed: the observer feels them. The proportions, if the object is composed of proportions, consist of a rule of three, and they relate if the different sizes reveal a relationship between the volumes which are characteristic of the object.

This leads us to the function of lines, planes and volumes which can themselves, of course, have interrelated sizes or functions. These, while in certain cases measurable, can be in other cases without dimensions. Three dimensions do not strike our senses except through the function; direction, attraction, repulsion. Here we are confronted with another property of space.

But in creation, objects perceived through our senses are not inert; they are the energies of which the whole of space is composed. If you like, space (creation) is of variable dimensions. Space, which has three dimensions, is only that part of creation which our senses can grasp, that is to say where the speed is synchronised with our senses. Above and beyond this synchronised speed we perceive nothing. Certain animals, fish for example, must perceive other dimensions than those of man, due to their special senses and their way of using them.

One can ask oneself how this space can be represented and how it can be communicated in a work. Here the problem no longer resolves itself by means of geometry, for this space is active: one can feel it, and its variety is infinite. One can take the sensation of weight from matter: so that the colours are not only visible, but sensed. In this way matter is contained or becomes weightless. One experiences the created work like this.

But there is also refraction. The atmospheric strata which are active, make us see things otherwise than they are in reality. There is an aberration which tricks us in our judgement of space. Space can be conceived of in more than one way, and the radiation of atmospheric strata is more powerful than our five senses can perceive. The radiation of everything is invisible to us. We are subjected to it unknowingly. It transforms by its action, and the phenomena which we see are purely on the surface. Actuality is only a product. The rainbow, for example: the mirage and the magnet, etc. A colour or an object changes when one surveys it through a polariser.

Space can also be a subject for art, just as much as religion, nature, history, etc. It is the conception of the subject that matters, not the interpretation. As for art, that must probably be a creation. This is still an imponderable. There are conventional subjects, as there are conceptual ones. It is for you to follow your nature.

Already as a child I greatly admired the firmament, the sea, the forest, the rising and the setting of the sun. Nature was beautiful and I had no need to understand it. I have always kept this admiration, and all that I learnt in school and at the Beaux Arts was not able to supplant this admiration, which haunted me. I have never been under the influence of a school, for I must say that I don't understand these conventions. I respect everyone: I leave everyone free and I let myself be guided by my impulses. Whether I expressed myself in painting, in sculpture, or by geometry, at school or in front of the Greek art at the Beaux Arts, I was always guided by my impulses. I don't understand convention, dogma, decree. Moreover, all my acts in life are controlled by a sort of antenna or radar. I cannot do otherwise. Obviously, there are degrees of capacity, and it is very difficult to express oneself, so that my ability must always be improving, and as I must always judge with my senses, which are themselves limited, I never succeed in expressing what I feel as I would like. My ideal is too high, and even if I could attain it my senses are too limited to see it in my actual work. Other instruments are better equipped to perceive the infinities. Visual sensibility and hearing are augmented by such means as photography, cinema, measuring equipment, radiography, and enable me to have access to what my senses deny me. My conception is a feeling accompanied by thought, an idea and presenting it, but the materialisation, which itself must also undergo transformation, is not an easy thing to realise. There must not be dogmas, principles or conventions. The whole must be like creation and made only to engender. This can be achieved with art, for it is the splendour of creation that I want to express. It is, then, neither scientific nor philosophic. The subject is space. I conceive it from what I am, and I am not able to do otherwise.

[1958]

Conception of space . 2

One has words to express oneself. The meaning of words is amply shown in dictionaries. Yet no one has the same image or the same impression of the meaning of a word. In the same way everyone has his own concept of space according to his individual nature. In general, man thinks of space as three dimensional, although you can speak to him of extension, of the universe. This way of speaking is often encountered among artists, and the error is seen even in the way they express themselves in their work. The confusion is inevitable. It is true that this conceptual error is current in our education. In this case it isn't space that requires another definition. The phrase 'concept of space' has no sense, not being appropriate. I would also like to say that the problem is not easy to resolve. Moreover, comprehension has nothing in common with conception. The space-universe, creation, has no solution of absolute value. Space is incommensurable. Nevertheless, through his sensibility man can have a presentiment of something which enables him to draw near to what has moved him.

Creation has always impressed me. In my childhood I was stirred by its grandeur, its beauty, its phenomena. All that happened without my trying to understand. When later I went to school I learnt geometry, and was told about space and how one could measure distances. All attention as I was, I was not able to understand, or see that nature could be submitted to measure. At the Beaux Arts my education weighed on me and hindered my intuitive feeling. But what could I do? The exhibitions, the Salons, all carried the same stamp. Yet without my knowing it, my work tended towards I don't know what; towards something that I didn't know how to express confidently. But then: His Majesty King Albert, who gave me signs of encouragement, asked me one day in 1914 for news about my work. I explained my thoughts to him: 'Objects separated in space have points of contact. It is not necessary for the objects to touch each other or be stuck to each other'. This greatly interested His Majesty but the war intervened and, after all, what I was thinking I could only express by three dimensions. I was looking always for what my education had denied me. But in 1916–17 I gave up this way of conceiving, seeing no use in it. I recalled my childhood and went to the woods, to the sea, and plunged myself once again into nature. This happened at the Hague. I thought of giving up working, but I did not refrain from writing down my thoughts and the ideas that came to me about space creation. This was not in order to describe them as a naturalist, but to reflect on the phenomena of creation. To this end I found it necessary to complete my writings by drawings. It was then that I wrote an article which appeared in **De Stijl No.9**. This article was illustrated with drawings. I also made in 1917 four compositions in the sphere, which have often been reproduced. I started from the thought of the point or sphere, as a segment of the infinitely great, which is always visible in the original work.One of the four objects, **No.3**, is a body of indeterminate form: with simply the co-ordinates recalling the point or the sphere. This work is in the Museum of Modern Art, New

York. I am not then part of any 'ism'. Van Doesburg for his propaganda stuck me in De Stijl, but to tell the truth I have nothing in common with what De Stijl pretended to want to say, nor with any other tendency: I am alone. I must also say that I was unaware that I had a conception of space: and this is natural because creation is infinite and I would never dare to say that I had found the solution to the enigma. This conception could just as well have come to me if I had never been to school or to the Beaux Arts.

There was, however, a follow-up to these investigations. This was the relations of volumes and the relations of colours when I was expressing myself on a flat surface. In order to verify the exactness of my subject I had recourse to a form in which I was able to fix a conception; whether circle, square, ellipse, or equations of varying degrees, it always remained geometric and in three dimensions. In the same way that I verified the relations of volumes, I sought to verify the space of colours. I then made a very laborious study over a long period and finally had the luck to find the exact space of each colour, following such and such accord. But then, after having thoroughly studied it, I realised that this knowledge is of no use in art. Without doubt, like geometry, it is too measurable. In science it can be used to establish the positions of infra-red and ultra-violet. This study was published in my booklet **l'Art et son Avenir** in 1924. This publication is unfortunately out of print.

Then I became occupied by the functions of lines and masses. As a result I thought that bodies were not restricted to their surface, and belonged to energy. But how to express that? Well, it is possible. Without the need of a dynamo bodies emit a radiation and this expresses itself. You may say: the moment you explain you limit, and there is no longer continuity. Yes! because today, through atavism, we think always of three dimensions. But here is what I thought and was able to verify: All is infinite but our five senses do not let us perceive it. Moreover, none of these senses allow of an absolute value. But the speed of our senses allows us to perceive a segment of the infinite every time that it is synchronised with the velocity of our senses. What happens is that we see something born, appear, undergo a transformation or change of state, then die or no longer fall within the scope of our senses. And although that can be expressed, it can be defined only with difficulty. We always take a limited view of existence because it falls within the range of our senses. One can say here that the role of time comes into play. While we are perceiving a phenomenon we believe we see it, yet we do not see its perpetual transformation. All is born, lives and dies for our senses, but not for the universe. But this segment of the infinite, this limited case, continues to belong to the infinite. It is not our senses but we ourselves who, by the fact of being limited, erroneously believe that that limitation alone exists: that of our three dimensions. In creation certain phenomena reach us.

But what we believe we see does not exist. The different atmospheric strata show us a state that is not real, and make what we see appear to be of such a form or such a colour; light for example: magnetic waves, electrons or the infinity of possibilities inherent in creation. The aurora borealis, is it not magnificent? And yet we are still in our own planetary system. There are still the galaxies. And all this is creation and has nothing to do with the history of man. In this domain one can equally well express oneself through art, or through what I am engaged in. I believe it is my right to express myself in accordance with my nature.

There is also the possibility of engendering colour, a coloured effect, without using coloured material: in the same way that one can create a volume without dimensions. The latter is a non-measurable body which re-enters our sensorial zone. It is through our sensibility that we perceive these colours and volumes, and not only through our five senses. Obviously, one needs to see these works and to make contact with them in order to have a better understanding of what I have been writing.

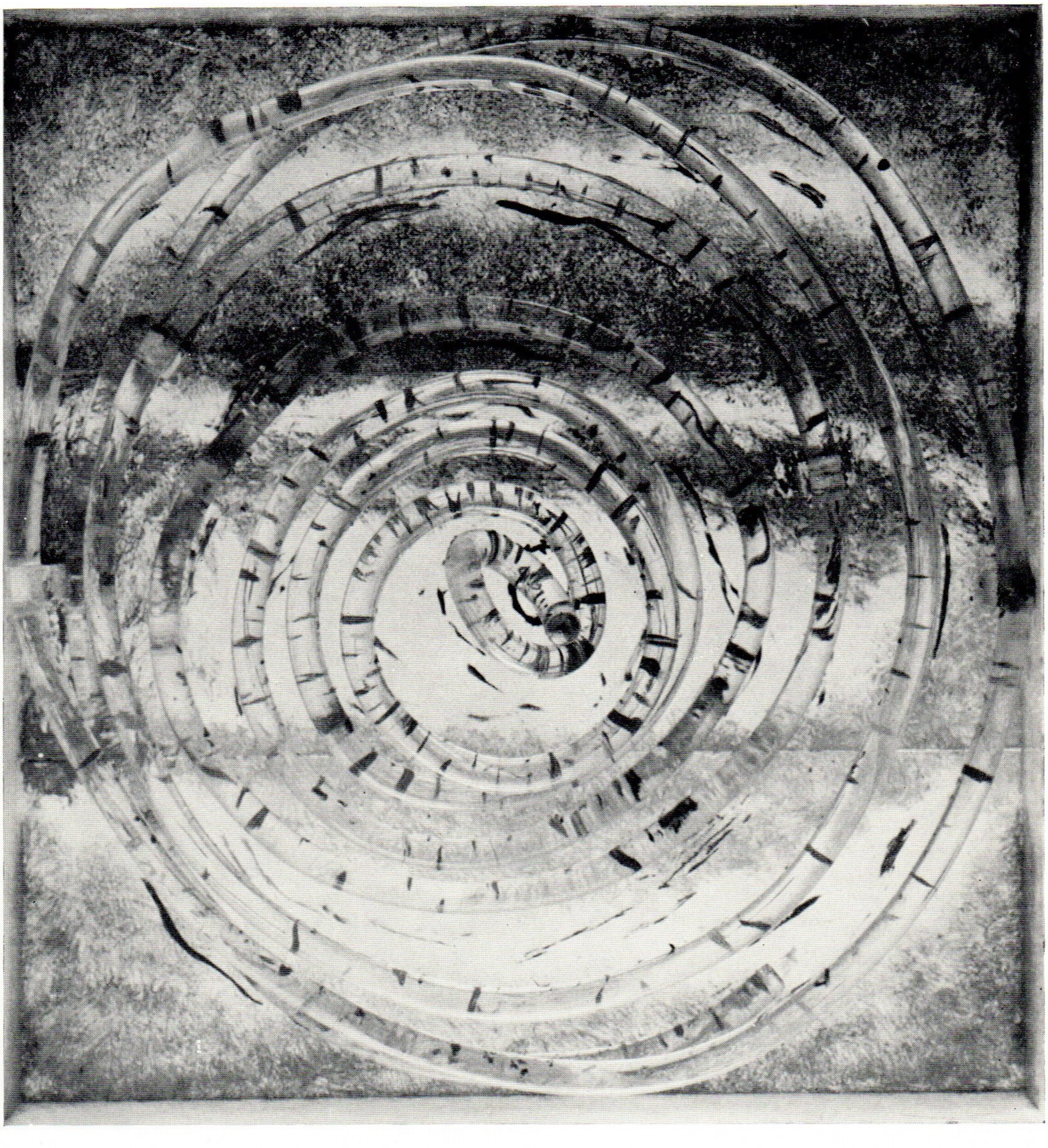
Creation has no dimensions. It is action and reaction, which is itself action. It is a chemico-physical laboratory. Light is a radiation which can be perceived by the surface it occupies. All phenomena are radiations. One action in combination with another engenders a phenomenon. The atmospheric strata participate in the chemico-physical action. That is to say, in traversing the atmospheric strata there is a transformation, and through perception the phenomena appear to us in unreal forms. The intensity of the light varies according to the atmosphere through which it must travel. Its creation is due to a kind of electro-magnetism. But the phenomena which it makes us see are deformed, having neither real forms nor exact colours. It isn't an illusion, but a chemico-physical reaction which the spectator believes he sees. The rainbow and the aurora borealis are examples of this. The mirage too. The whole of creation presents us with surprises. It is a perpetual transformation and for this reason has no dimensions. The dawn and the sunset, the seasons, the plants and all the manifestations of creation have a sense which is not measurable but ascertainable. Take the refraction of light. Lightning, and its thunder and its brightness, are the results of a phenomenon. The spectacle that is produced is due to the phenomenon, but it must not be confused with the phenomenon itself.

My works represent my conception of creation, and have nothing in common with so-called modern art. I have never followed the movements, the isms. Frankly, my work has not been understood at all, from the very beginning, and yet they wanted to incorporate me among the army of artists. It is a similarity which interested them, and the conceptual side remains ignored. This is obviously of no importance since it is only the work which counts. But even so, it has some importance since this cuts me off from the world and allows me to follow my conception. The usurpers remain for what they are. This doesn't prevent them from remaining convinced; why? because they do not discriminate. They are always looking through their distorting glasses. They believe what they see and are convinced. They believe also that the right to encroach is their due and would be quite amazed if you treated them like pretentious upstarts. So much for men.

[1960]

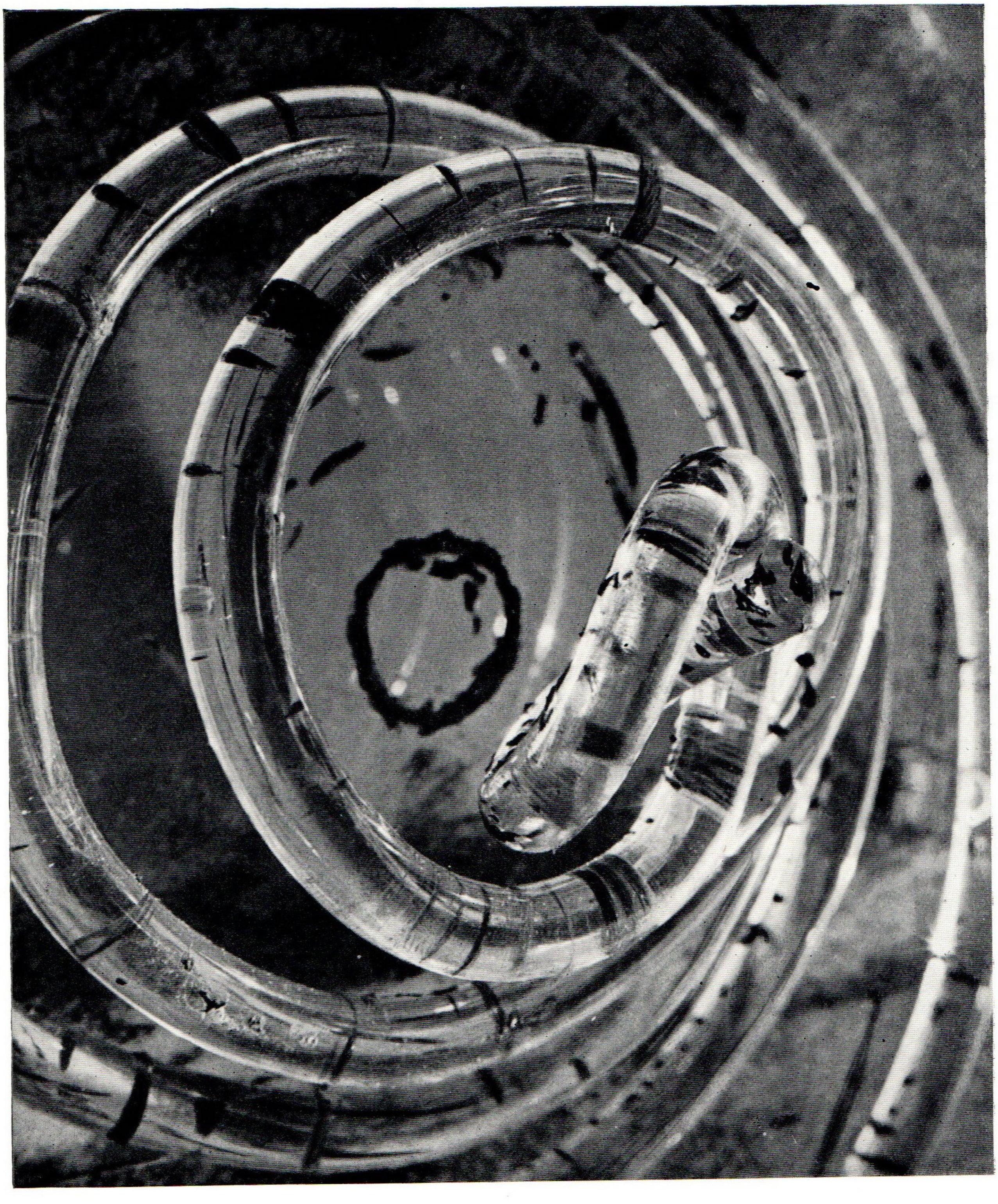
Georges Vantongerloo

No.240 Elément indéterminé 1955

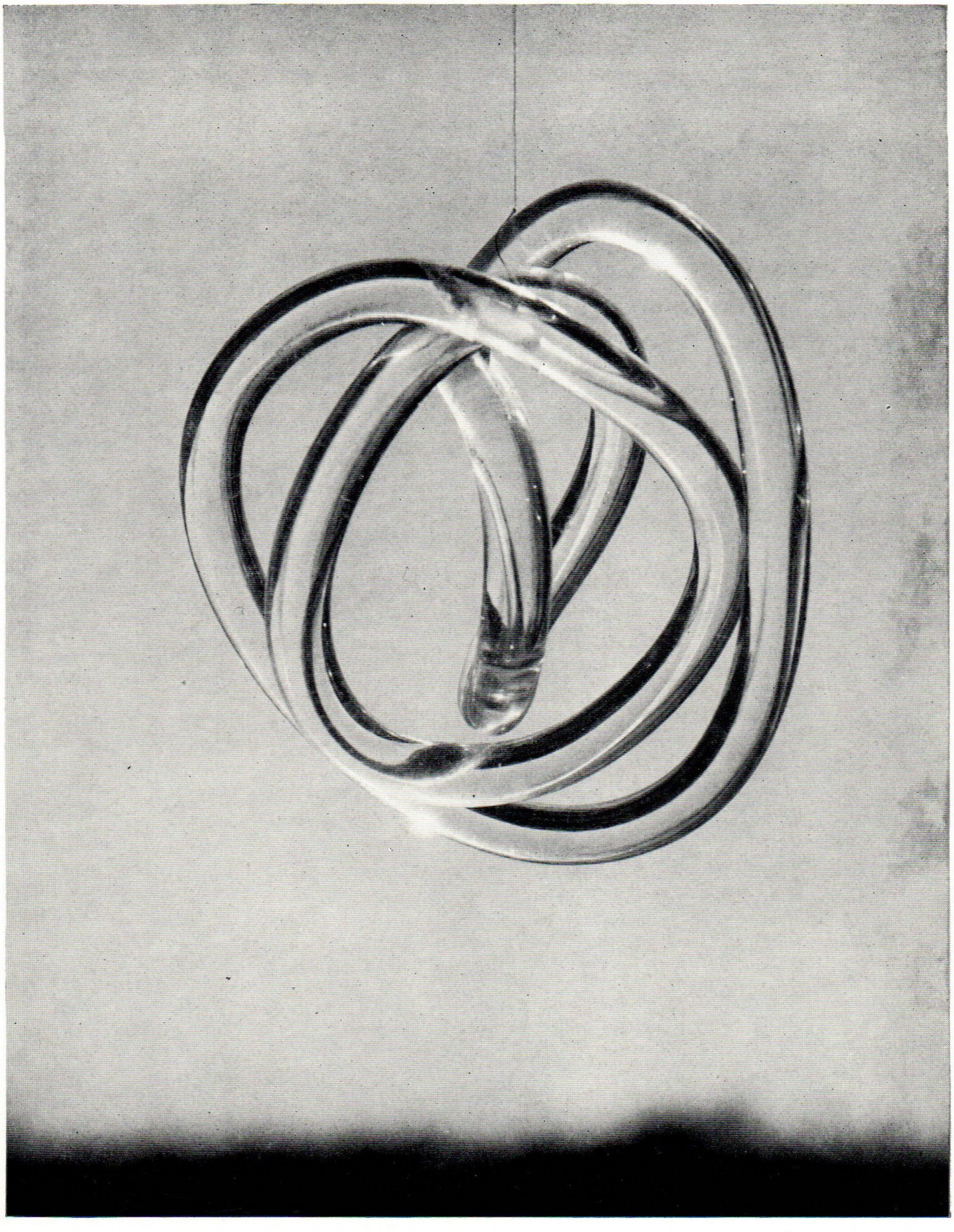


Georges Vantongerloo

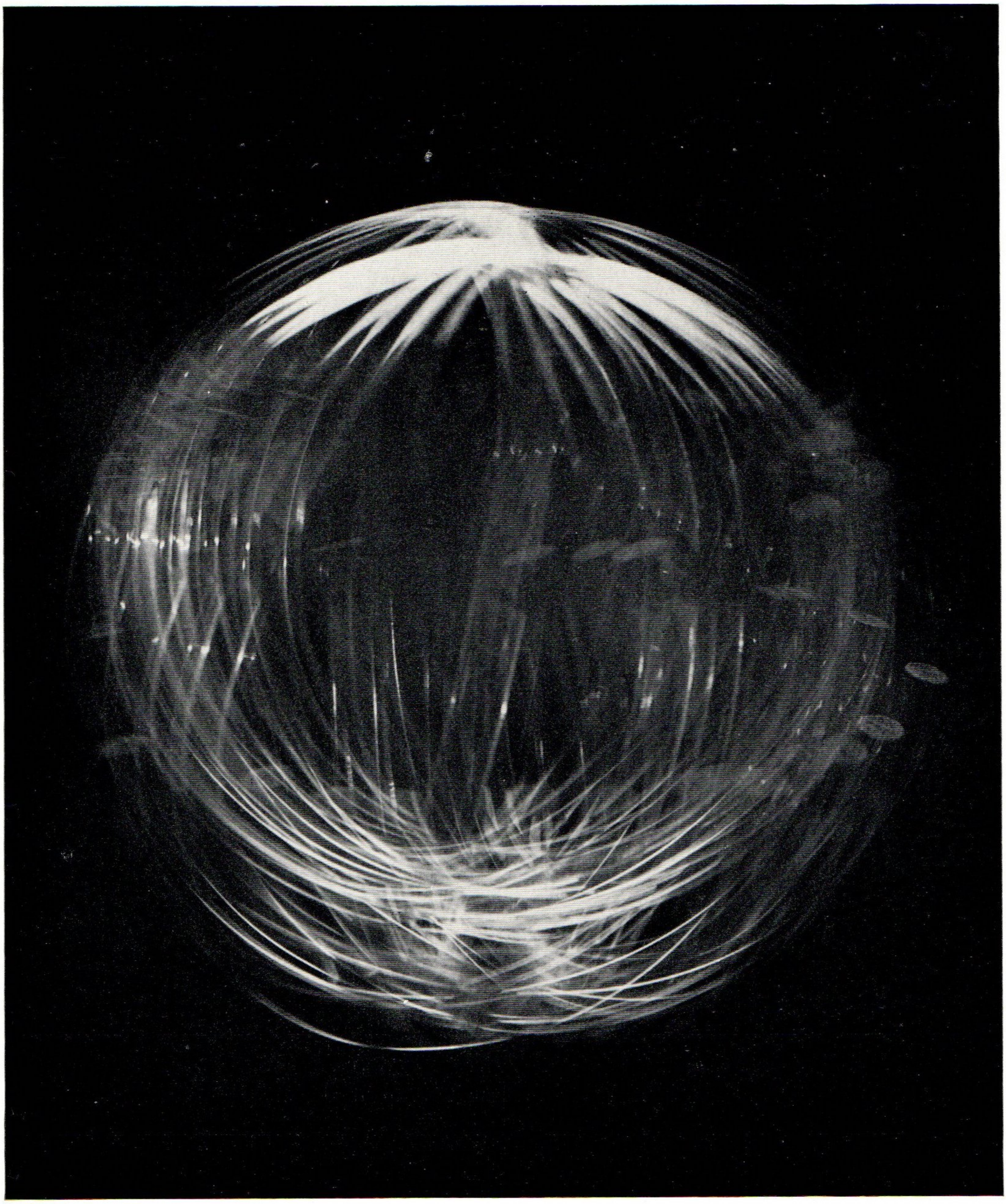
No.240 detail



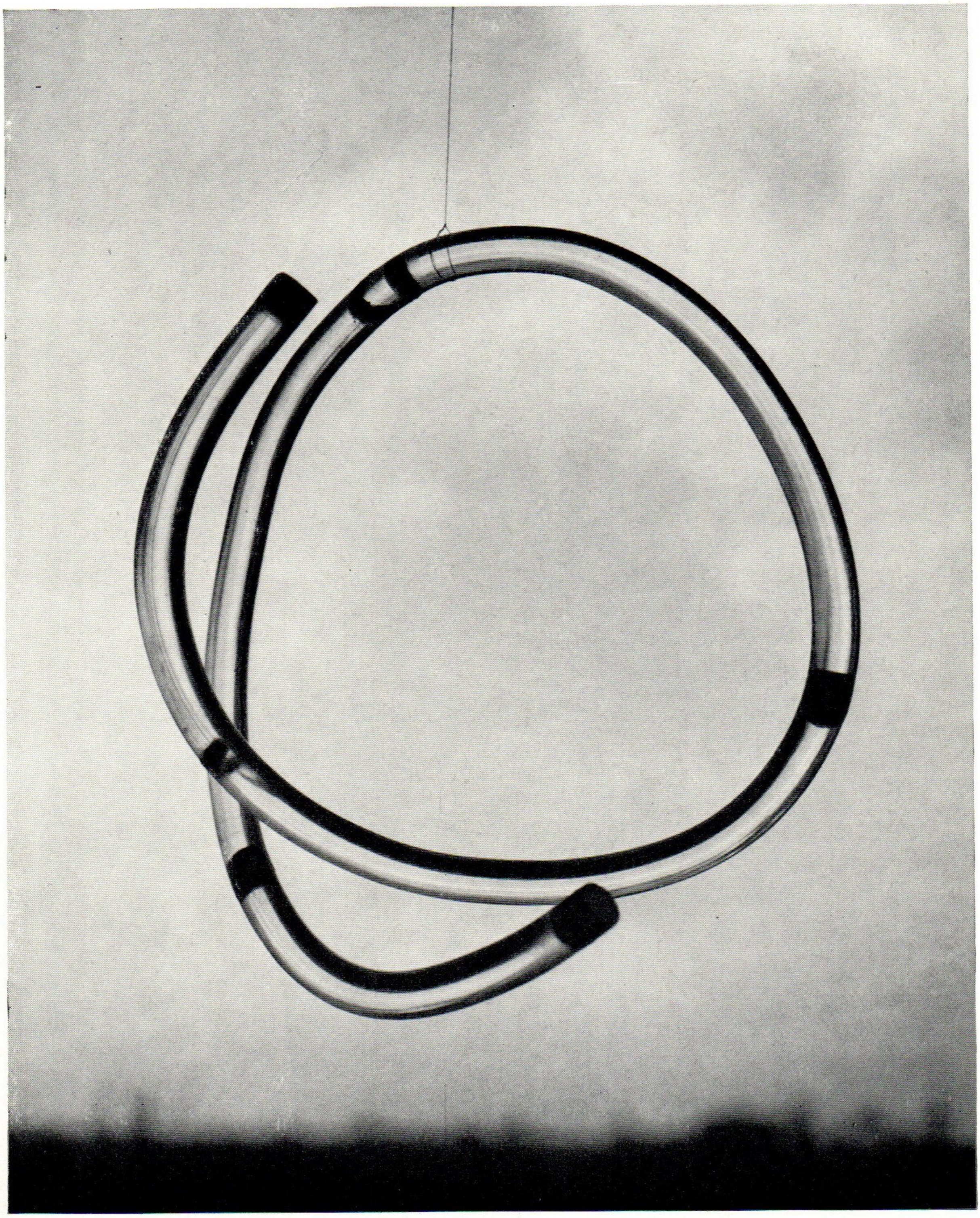
No. 214 Cocon, chrysalide, embryonnaire 1950



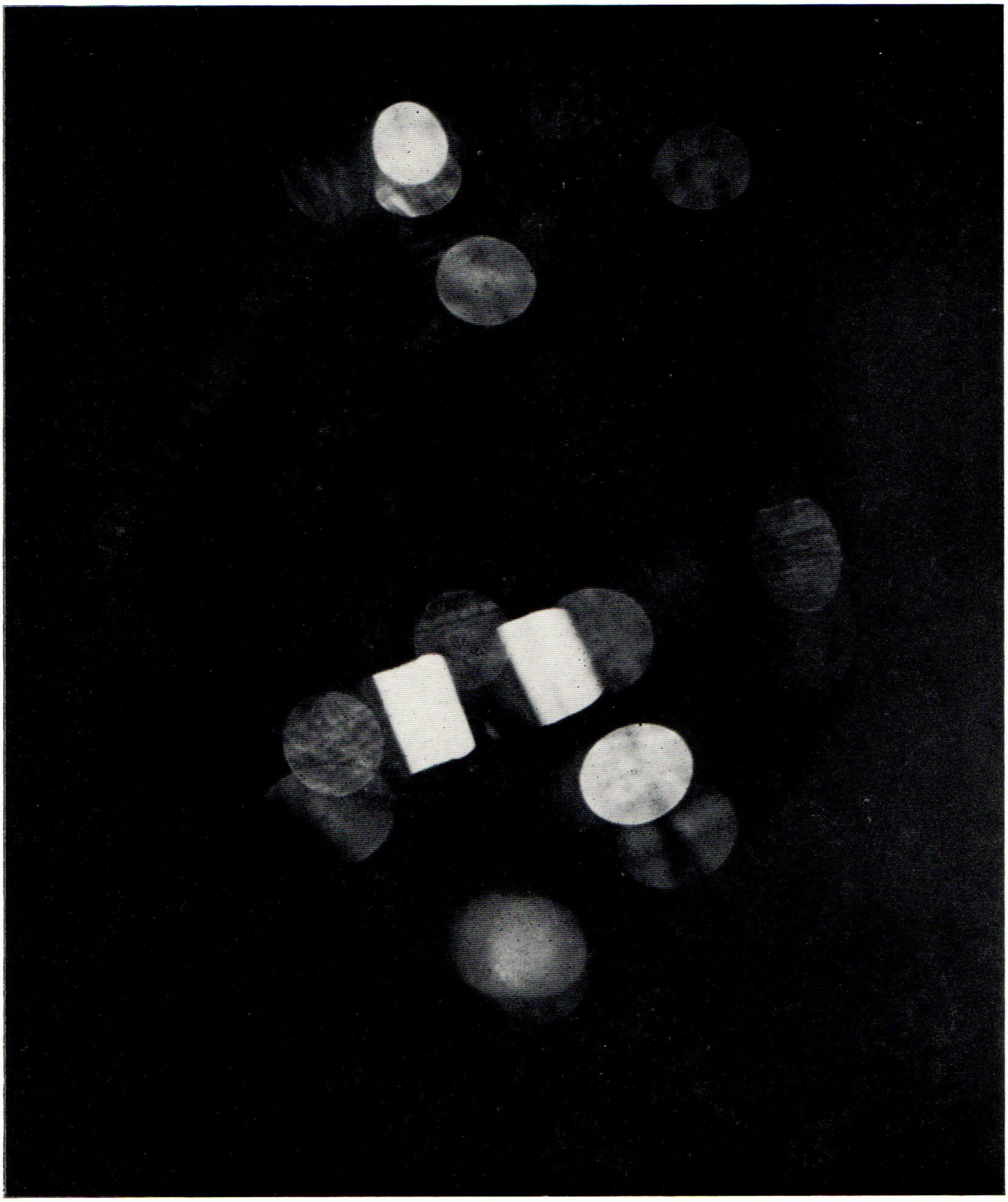
No.214 photographed while rotating



No.210 Six couleurs dans l'espace 1950

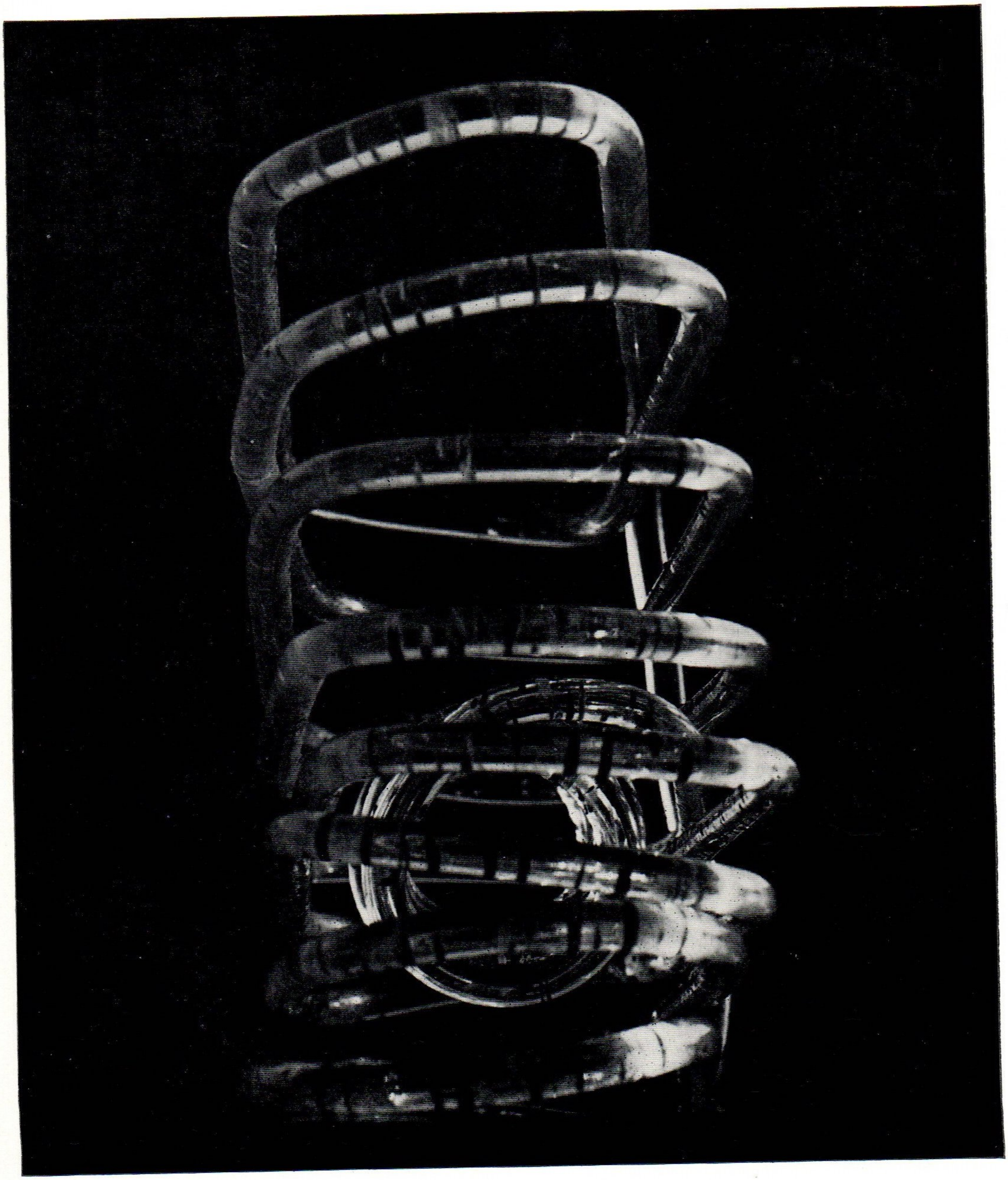


No.210 photographed while rotating



Georges Vantongerloo

No.228 Segment d'espace 1953



No.228 detail